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TROUBLED PROMISE: Little oversight, looming problems for Pa. gas industry

by laura legere (staff writer)

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The nation remains riveted by the deadly explosion and ongoing environmental catastrophe of a deep-water oil rig accident in the Gulf of Mexico, the need for oversight, public information and disaster-response plans in efforts to extract the Earth's fuel resources has come into sharp focus.

In Pennsylvania, the troubled promise is in the Marcellus Shale, a natural gas-rich geological formation below three-fifths of the state that holds enough recoverable gas to satisfy all of America's gas needs for more than a decade.

A six-month investigation by The Times-Tribune, including a review of thousands of pages of Department of Environmental Protection documents made available through a Right-to-Know request and interviews with regulators, citizens and scientists, shows the limits of the current regulatory environment to prevent contamination of the state's land and water during deep gas drilling in the shale.

It reveals costly environmental and safety errors made by a growing industry that has become the state's economic hope, and details the often frustrated efforts of regulators to police it using outdated laws and incomplete information.

The investigation found:

- There have been hundreds of spills at natural gas well sites in the commonwealth over the last five years, the vast majority of which have never been publicized by the DEP.
- The massive effort to exploit the shale has left an indelible mark on the landscape and communities in the state's Northern Tier and southwestern region, bearing both economic benefits and environmental costs. Experiences in those regions offer a preview of gas development in the seven counties of Northeast Pennsylvania, where a dozen Marcellus Shale operators hold leases to drill.
- Despite industry claims that it discloses all of the chemicals it uses in the gas extraction process, DEP documents from a series of spills in Susquehanna County show that the industry's disclosure is incomplete and insufficient for determining contamination in soil and water.
- A growing chorus of scientists is arguing that not enough is known about the effect widespread gas drilling will have on water supplies, air quality and human health to justify the intensive development of the resource already taking place.

"There's a massive industrialization experiment happening in West Virginia and Pennsylvania right now," said Anthony Ingraffea, a Cornell University engineering professor who has studied rock fractures in oil and gas wells for two decades.

"It might sound cruel to say this, but people in New York are very happy to see that West Virginia and Pennsylvania jumped in with both feet, eyes closed, as quickly as they could.

"We're learning from your mistakes. You're the guinea pigs."

Two goals

Among the six states underlain with Marcellus Shale, Pennsylvania has the largest portion of the gas-bearing rock and the most current wells. It will be wedded to the industry for the century and the 380,000 to 760,000 wells the industry estimates it may take to drain the shale's promised reserves.

The state has already benefited from a tremendous investment, including \$1.8 billion in up-front lease bonuses paid to property owners in 2009 alone in exchange for the right to prospect below their land.

But Pennsylvania has never performed a comprehensive study of the accumulated impacts of drilling on a community or a watershed.

It has never declared a high-value watershed - like those around the reservoirs that feed Syracuse and New York City - off limits to gas extraction, as New York State has effectively done.

And Pennsylvania has never attempted to stop or slow the deep drilling since the first Marcellus well was sunk six years ago, unlike New York, which has imposed a moratorium on Marcellus Shale drilling as the state crafts an environmental impact statement, and unlike the interstate commission that regulates water quality in the Delaware River Basin.

Calls for caution have increased after a Marcellus Shale well in Clearfield County blew gas and waste fluids uncontrollably for 16 hours on June 3. State Sen. Jim Ferlo, D-38, Allegheny County, introduced legislation last week to pause drilling on both private and public lands in the state for a year.

Industry groups say calls for a moratorium are misguided. They emphasize that the gas companies' economic interests are naturally aligned with environmental interests.

"The only thing that differentiates you as a corporation is your image, your reputation, your costs and workforce, and innovation," Kathryn Klaber, the head of the Marcellus Shale Coalition, said. "Environmental compliance is a much bigger part of who you are."

Matt Pitzarella, a spokesman for Range Resources, one of the largest Marcellus Shale leaseholders in the state, simplified the equation: "We will make more money if we do it the right way," he said.

But last week, at a hearing about the Clearfield County well accident, DEP Secretary John Hanger said he is "not pleased" with the industry's environmental performance and that his own agency is not yet up to his highest standards.

"This industry's got to be better," he said. "There's too many leaks, there's too many spills, there's too many incidents of gas migrating."

He has a goal for the industry and his regulatory agency to be world class, he added. "We're not there."

The commonwealth's environmental regulator must balance simultaneous aims: "to produce the gas and protect the environment as we do that," Mr. Hanger often repeats.

In the field, those directives can become more complicated.

In early 2009, after witnessing a string of diesel spills at Cabot Oil and Gas Corp. drilling sites in her small Susquehanna County township, resident Victoria Switzer appealed to one of the state's environmental regulators to impose stiff fines and stop the accidents before they worsened.

At the time, there were two inspectors to police the proliferating wells being drilled in Northeast Pennsylvania counties. Then as now, drillers were expected to report any spills to DEP, as required by law.

But as he stood near her home in Dimock Twp. the regulator told Mrs. Switzer that the agency had to moderate its penalties or risk being sued by the gas companies - taking inspectors out of the field and into courtrooms to defend their decisions.

Worse, he said, the agency feared that if it was too hard on the gas companies, they might stop reporting their spills.

'We could stand to catch our breath'

Difficult decisions about how and when to curb an industry that is acclimating to the state's current and changing laws have become commonplace for the state's environmental oversight agency.

According to Scott Perry, head of DEP's Bureau of Oil and Gas Management, the regulatory agency does not have the legal right to hit the brakes on the whole industry the way New York has done.

Instead, the agency can restrict individual companies that have committed particularly severe violations after the fact - a tool it infrequently uses.

In April 2010, the department selectively halted drilling operations by Cabot in a 9-square-mile area, and stopped issuing permits for it to drill elsewhere, after it found the company failed to correct problems with its wells that caused methane to seep into residents' drinking water in Dimock.

In his testimony last week, Mr. Hanger asked legislators to craft a law with "crystal clear language" giving DEP the authority to withhold permits from operators with unsafe practices, since its current authority could be open to challenge by companies.

Even without a law, "we don't hesitate to take those actions when they are required," he said.

But last fall, legal hurdles apparently contributed to DEP officials' decision to reject the most stringent options for stopping Cabot's operations, even as the company experienced its 19th, 20th and 21st spills at its drilling sites in the rural township in less than two years.

Over two days in September, pipes and hoses carrying a water and chemical mixture across a steep hayfield breached three times, dumping about 8,400 gallons of the fluid around a Cabot well site and allowing up to 1,900 gallons of it to leak into a wetland and creek.

In internal e-mails in the days after the spills, Jennifer Means, the oil and gas program manager in DEP's Williamsport office, wrote that she "wholeheartedly endorsed" either revoking drilling permits the company was already issued or halting pending permits "to slow down their future activity."

It "would go a long way with the public" whose "biggest frustration... is the rate at which they are allowed to continue given all these incidents," she wrote.

"Also - we could certainly stand to catch our breath."

But after the agency's top attorney warned about procedural hurdles to suspending permits under state law, the department decided not to take that step.

It opted instead to issue a narrower order that curtailed - but did not halt - the company's operations, and allowed Cabot to resume full development after three weeks.

'Self regulation doesn't work'

Like the offshore oil rigs that have come under national scrutiny, Marcellus Shale drilling operations are regulated by laws and agencies that rely heavily on the industry's cooperation in policing itself.

In Pennsylvania, Marcellus Shale gas producers are responsible not only for reporting their own spills, but for leading their clean-up operations and, with guidance from state regulators, for assessing the damage done by their mistakes.

At the Marcellus Shale Policy Conference in Pittsburgh last month, Mr. Hanger called for stronger rules to help prevent drilling from polluting the state's streams and air. "Self-regulation doesn't work," he said.

But even proposed rules to improve the requirements of the cement and steel casing that protects an aquifer from a natural gas well will still rely on the companies to perform their own quarterly inspections of the integrity of their wells.

Shortly before those new regulations were prepared for public comment, Mr. Hanger said a mixture of company reporting and department inspection is appropriate.

"We make it very clear to companies that hold permits that filing misinformation or wrong information or deliberately inaccurate information is a very serious matter," he said. "Any company that is sloppy or, even worse, deliberately false, is almost surely going to get itself into very deep and hot water. They don't want to go there."

'We're changing lives'

Marcellus Shale gas operators, many of which have national or international operations and are publicly traded companies, frequently surpass the state's safety and environmental requirements - a fact state regulators often mention to calm public concern about the safety of the process.

At twilight on a May evening, George Stark stood wearing a hard hat and safety glasses at the foot of a state-of-the-art drilling rig ablaze with stadium light in a Dimock field.

Cabot's newly hired public relations manager pointed out the safety features on the rig, contracted from Patterson-UTI Drilling Company, including a system of tanks and filtration devices, called a "closed-loop" system, that makes it so used fluids and mud can be reused on-site without ever flowing into a lined earthen pit.

The pits are prone to leak, like the one at a Cabot site in the same township that DEP found contaminating groundwater weeks earlier. Pits at 29 of the 364 Marcellus wells drilled in the state this year were improperly constructed or maintained, according to DEP records.

Cabot has been operating in Dimock since 2006, but the series of wells being drilled with the Patterson rig are the first the company developed using a closed-loop system - a best practice that is not required by Pennsylvania law.

Beneath the rig, workers placed a giant mat of black, heavy plastic on the acres of flat earth - a guarantee that most anything spilled on site would not hit the ground. The company had been using that best practice for about eight months.

Earlier in the evening, on a tour of a reclaimed well site where deer nibbled on clover near tanks and a metering station hooked up to a completed well, Mr. Stark listed highlights of the investment Cabot has made in Susquehanna County: The company has leased more than a third of the county's total acreage. It paid property owners \$75 million in 2009 alone to acquire the right to drill on their land.

Between 2006 and 2009, the company spent \$500 million on its operations in the county. In 2010, it expects to spend \$400 million more.

"We're changing lives," he said, "in a positive way."

Tough love and tough rules

Not everyone agrees with Mr. Stark.

After speaking with Dimock residents who have experienced water contamination from Cabot's drilling, Robert F. Kennedy Jr. drove through the township's winding roads to a barbecue stand in a trailer parked on the side of Route 29 - one of the businesses in the township that has been born or altered to cater to the industry workers.

Mr. Kennedy, president of Waterkeeper Alliance and a professor at Pace University School of Law's Environmental Litigation Clinic in New York state, drew a comparison between the confused and apparently insufficient regulation of offshore oil drilling, with the regulation of onshore energy extraction, like Marcellus Shale production.

Unfortunately, he said, "I think that's a template for what's happening all across the country."

The best technologies and enforcement practices necessary to minimize mistakes by natural gas drillers are well known, he said, but they are rarely adopted by governments and imposed on the industry.

"What they need is tough love from the regulators and from themselves," he said as he drove.

"They need restraint. They need tough rules that allow them to make money, and big money, but force them to do it in a way that's not going to penalize the public."

Mr. Kennedy said the gas industry's record of mistakes is contributing to a growing public reaction against gas extraction in Pennsylvania and drilling regions across the country. That is unfortunate, he said, because natural gas is a cleaner-burning alternative to traditional fossil fuels and will play a critical role in leading the country away from oil and coal and toward green energy solutions.

"Nobody's going to believe that about them when they're doing these kind of shenanigans," he said.

"Nobody's going to believe that they're good guys when they're blowing up people's houses and poisoning their wells."

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